REMARKS

The claims in the case are 1, 3-22, 24 and 25. Claim 25 was withdrawn from consideration.

Applicant has requested further examination in the belief that the examiner has made a series of incorrect conclusions about the prior art and about terminology and then used these incorrect conclusions cumulatively to reject the claims. Applicant asks the examiner to consider the following explanations of these errors. Applicant recognizes that it is neither good psychology nor good advocacy to tell an examiner that he is in error, but applicant's undersigned attorney knows of no other way to explain the problem. Each erroneous observation will be taken one at a time and the reasons it is incorrect explained. Applicant's undersigned attorney apologizes for the length of this response but he wants to be thorough, clear and complete.

The following discussion has been divided into five topics. These are: (1) a Summary of the Invention; (2) some Principles Of Candlemaking and the Prior Art; (3) the meaning of The Word "Freestanding"; (4) The Structural Difference Between a Freestanding Candle and a Container Candle; and (5) The Rejection and the Non-Obviousness of the Invention.

Summary of the Invention

Preliminarily, it would seem helpful to briefly review and summarize the invention. Although defined more completely by the claims, the invention is essentially a

flame resistant sheet attached to the bottom of a candle that is not in a container. The flame resistant sheet extends outwardly at least an inch from the axis of the wick. Preferably, a wick support is used and is attached to the flame resistant sheet so it forms a barrier preventing molten wax from flowing up the wick from the lower end of the wick.

The purpose of the invention is to provide some safety protection to consumers who fail to do what they are supposed to do. Some consumers seem unaware of or ignore the fact that, when a candle burns all the way down to near its bottom, there can be several, severely dangerous consequences if the candle is setting upon a flammable surface, such as a wooden table top. The molten pool of wax surrounding the wick below the flame can melt through the bottom and flow onto its support surface. This can leave the wick still burning with the wick lying on the wooden surface. The out-flowing molten wax can also carry particles, such as match tips, with it out onto the wooden surface where they act as secondary wicks, burning while lying on the wooden surface. Because of these hazards, candles should be burned only when placed on a heat resistant non-flammable surface or on a non-flammable candleholder. But some consumers do not do so.

The flame resistant sheet of the invention can improve the probability that these dangerous consequences will not cause a fire. This is especially true if the wick support is attached to the sheet. The reason the flame resistant sheet is joined to the bottom surface of the candle, is so that, it will stay with the candle. The flame resistant sheet can prevent a subsurface fire by providing a fuel barrier, usually molten wax, and an ignition barrier,

i.e. it separates the candle flame from the surface beneath it. During testing by the inventor, it was not uncommon to see a scorched subsurface that did not burn because there was no fuel, oxygen or ignition source.

The reason the flame resistant sheet extends out at least an inch is so that it extends out as far as applicant believes the molten pool is most likely to leak through and covers the area where a flaming wick is most likely to settle. The candle wax typically melts below the flame down to an arcuate interface between the liquid wax and the solid wax. Consequently, the center of the candle bottom is usually the first part to be subject to having the molten wax leak onto the supporting surface.

Some Principles Of Candlemaking

The art of candlemaking is not as simple as it may at first appear. There are some principles of candlemaking that are relevant to a consideration of the non-obviousness of the invention because they are known to and influence a person of ordinary skill in the art. Candlemaking initially appears to simply be the physical construction of a piece of wax fuel having a wick down the center with wax impregnated in at least the protruding part of the wick. The operation of a candle appears to be simply that a person holds a flame next to the wick which melts the wax in the wick, then ignites the molten wax and thereafter, the flame continuously melts more wax and that wax is fed up the wick by capillary action to continuously supply fuel to the flame. Candle making would be that

simple if there were only one kind of wax, only one kind of wick and only one kind of candle structure and dimensions.

However, candlemaking is not that simple because there are several variables in candles all of which have an effect upon the burning characteristics of the candle. Burning characteristics include flame temperature, the rate of fuel supply to the flame, the rate of air supply to the flame, the radial distance from the wick that wax melting occurs, the size of the pool of molten wax surrounding the wick, the emission of soot and whether molten wax overflows down the side of the candle. One variable that affects burning characteristics is the melting temperature of the wax composition. There are many different waxes which have different melting points. The wax melting point affects the rate of melting, the wax pool size, the softness and size of the unmelted portion of the candle and other burning characteristics. A second variable is the air supply to support the combustion of the molten wax. Some candles are housed in a container and some are not. The container affects the supply of air to the flame and, therefore, affects the rate of fuel consumption and the temperature of the flame. A third variable is the wick. There are wicks of different diameters and other characteristics and these differences affect the rate of molten wax fuel flow up the wick to the flame.

To support this discussion, excerpts from three books on candlemaking are enclosed herewith. These books are: (1) *The Candlemaker's Companion*, By Betty Oppenheimer, Storey Books, 1997; (2) *Candlemaking*, by David Constable, Search Press,

1992; and (3) *Candle Crafting From an Art to a Science*, by William Nussle, A. S. Barnes & Co., Inc. 1971.

The skilled candlemaker must design a candle to get the right balance of these variables so the candle does what the consumer of the particular candle wants. Considering the wax melting point, the lower the melting point of a wax, the more rapidly the wax melts and the larger the wax pool around the wick. A small narrow candle, such as a taper, which is typically supported in a candle holder, is designed with a higher melting point wax so the molten wax pool around the wick is small. This minimizes or eliminates the unsightly overflow of wax down the side of the candle and eventually onto the candle holder. Ideally, in a taper candle, a small, dish-like pool is maintained which does not extend quite to the edge of the wax, but any upstanding wax along the edge will melt into the pool when it stands radially out from the flame.

A wider candle, such as a 3" pillar candle, which can stand by itself on a flat surface, uses a wax with a melting point lower than a taper because the flame needs to be able to melt wax radially outwardly a much greater distance from the wick. However, it is desirable to leave some peripheral wall standing around the pillar candle so that wall contains the wax and prevents it from overflowing. A container candle, sometimes called a jar candle, uses a still lower melting point wax. The reason is that it is desirable to melt <u>all</u> the wax all the way to the container (i.e. <u>not</u> leave a peripheral wall of wax as with a pillar) so that no wax remains on the container wall. [see Nussle, 80-81, 83] Wax on the container wall is wasted, unburned wax and will interfere with light from the candle.

Overflow of wax is not a problem with a container candle because overflow is prevented by the container wall.

Container candles can not use the higher melting point waxes because the higher melting point waxes either cause excessive soot or they leave excessive wax unburned on the interior wall of the container. The reasons are these. If a wick is selected to feed fuel to the flame fast enough to make a flame that it is hot enough to melt the higher melting point wax all the way to the wall of the container, the container restricts the flow of air to support that flame. The restricted air flow causes heavy soot (unburned carbon) to be produced. If the wick is made small enough to reduce the fuel flow rate to the flame in order to eliminate the soot, then heavy deposits of wax are left on the interior of the candle container. This is illustrated in the Nussle book, page 86, Table 15 for the 135° F wax. The prior art therefore uses a lower melting point wax for a container candle so a lower temperature flame, which burns fuel at a lower rate, can still melt the wax all the way to the container wall.

As a result of these and other factors, the prior art has recognized that waxes which are suitable for candles in a container are not suitable for candles which have no container. Nussle, at page 89 says that container candles should use wax with a melting point of 125° F to 127° F. Oppenheimer, page 66, for container candles refers to "paraffin with a low melting point, 125-130° F". However, for candles which are <u>not</u> in a container, the melting point temperature of the wax is higher. Oppenheimer, page 74 for

those candles refers to "paraffin with a medium melting point of 135-145° F. Nussle, page 120, shows waxes with a melting point in the range 135° to 150° F.

The person of ordinary skill in the art is aware of these variables and how they affect the burning characteristics of a candle. A person of ordinary skill who views the Henze reference, brings these principles to bear on any consideration of modifying Henze.

The Word "Freestanding"

This brings us to the meaning of the word "freestanding". The examiner is absolutely correct in thinking that the consumed fuel portion of a candle, if wide enough, can be either set in a container or tray or set by itself on a surface and the structure of the consumed fuel portion of the candle is the same in either place. The examiner is also absolutely correct in thinking that a freestanding candle can be inserted in a container. But a candle that will burn correctly standing on its own and a candle that will burn correctly in a container are two different structures as will be discussed. In order to distinguish these two structures, applicant used the term "freestanding" to exclude a candle in a container and refer to a candles which can stand upright on its own. Because the examiner has made an interpretation of that word which is believed incorrect, applicant's attorney needs to discuss the meaning of that term before discussing the structural differences between a contained candle and a freestanding candle.

The MPEP provides:

2173.01 Claim Terminology

A fundamental principle contained in 35 U.S.C. 112, second paragraph is that applicants are their own lexicographers. They can define in the claims what they regard as their invention essentially in whatever terms they choose so long as the terms are not used in ways that are contrary to accepted meanings in the art.

In the application, applicant said: "A candle is freestanding if it is capable of standing upright on its own without requiring a support such as a container or a candle holder".

The Pappas reference, cited by the examiner, says (col. 5, line 2) "A freestanding candle is defined as a candle having a solid fuel, such as wax, that is not held within a noncombustible container".

Webster's Third New International Dictionary of the English Language defines (copy attached) the word "freestanding" as " standing alone and on its own foundation free of architectural or supporting frame or attachments". A freestanding candle is therefore a candle that is standing upright on its own, free of anything to support it. This meaning of "freestanding" does not change the fact, as stated above, that the consumed fuel portion of a candle, if wide enough, can be either set in a container or tray or set by itself on a surface and the structure of the consumed fuel portion of the candle is the same in either place. This meaning of "freestanding" does not change the fact that a freestanding candle can be inserted in a container. But, when a freestanding candle is placed in a container, or if the fuel portion of a contained candle is set on a table so as to

be freestanding, this is not only a structural modification of the candle, it also changes the way in which the candle burns.

Because applicant defined "freestanding" and did so in a way consistent with the commonly accepted meaning of that word, applicant requests that the examiner give the term "freestanding" which appears in the claims, that meaning, and interpret it as excluding container candles.

The Structural Difference Between a Freestanding Candle and a Container Candle

The structural differences between a freestanding candle and a contained candle and the way these structural differences affect candle burning operation are important and relevant. Applicant concedes that, to a person not skilled in the candlemaking art, the fuel body of a freestanding candle appears to be identical to the fuel body of a contained candle. Both are wax cylinders with a central wick. Physically, they look the same, but there are operational or functional differences between these two types of candles and these differences are very relevant to the issue of obviousness. Therefore, these structural differences are now discussed.

A contained candle has two structural components, the fuel part with a wick and the container part. Not only does the contained candle include the container structure, but also very importantly, the inclusion of that container provides very different results in burning characteristics, safety and other results. For example, a lower melting point wax, typically 127° F, is used in a container candle. This is so that the candle will melt all the

way across the top of the candle, consume all the contained wax during burning, and leave no residual (hang-up) on the container wall. The container confines the low melting point wax so it will not run down the side of the candle despite its low melting point. If the fuel part of a contained candle were removed from the container and burned in a freestanding condition, such the wax fuel would run all over when lit if not contained, and would otherwise operate improperly and unsafely as discussed in more detail below. Furthermore, a contained candle has the obvious safety advantages, which are the result of the presence of the container structure.

The facts that the two structural components of a contained candle can be separated, and that a freestanding candle can be inserted in a container, do not make the combination of those two components the same structure as one of the components standing alone. The contained candle is the combination of the container and the fuel body. They cooperate to provide known advantages. When a freestanding candle is inserted into a container, the candle is no longer freestanding, even though the fuel portion remains the same. When a freestanding candle is inserted into a container, it acquires the advantages of having been combined with the structure of the container. The combination of wax fuel portion and its container functions and operates differently than when the wax fuel is burned freestanding. For example, its higher melt temperature of a freestanding candle, if burned in a container, will cause it to either make excessive soot or not consume the wax all the way to the container wall, as described above and by Nussle. The point is that a contained candle is not the same structure as a freestanding

candle even though they both have a fuel body with the appearance of a cylinder of wax fuel with a central wick. Inserting a wax fuel body into a container and removing the wax from a container candle are structural changes.

The limitation inserted in the claim that the candle of the invention is "not contained within a container" is not merely a statement of intended use as the examiner has stated. That phrase is intended to distinguish applicant's freestanding candle from a candle which is the combination of a fuel portion and a container. This is a negative limitation and negative limitations are expressly approved in MPEP 2173.05(i). This limitation was inserted to make inalterably clear that applicant's invention is limited to freestanding candles, and is not directed to a candle fuel combined with a container, where the invention becomes superfluous.

Contrary to the examiner's assertions at the top of page 4 of the last office action, this limitation does result in a structural difference. This limitation eliminates the container and the cooperation between the container and the wax fuel. Furthermore, contrary to the examiner's next assertion, the prior art structure of Henze is not capable of performing the same function if removed from Henze's container. That fact will be discussed below in connection with a discussion of the non-obviousness issues.

The examiner next referred to the concept of intended use in connection with a method but that is believed inapplicable because there are no method claims under consideration in view of the examiner's requirement for restriction and constructive election, thereby eliminating claim 25 from further consideration.

The Prior Rejection and the Non-obviousness of the Invention

Applicant now asks the examiner to consider the obviousness of modifying Henze to construct a freestanding candle with a flame resistant sheet joined to the bottom surface of the fuel body of the freestanding candle. This critically important limitation is directed to the structural feature that, in cooperation with the fuel body, provides the principal advantages of applicant's invention, preventing leakage of molten wax through the candle bottom when there is no container to prevent that leakage. With respect to this feature, the only prior art cited by the examiner is the Henze patent.

Although the examiner is familiar with the manner of considering obviousness as described in the MPEP, applicant's attorney believes it is desirable to remind the examiner of some of those requirements which are particularly applicable here. Only the most applicable parts of these sections of the MPEP are repeated here.

> **2143 Basic Requirements of a *Prima Facie* Case of Obviousness**
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> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.
>
> The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

2143.01 Suggestion or Motivation to Modify the Referenc s [R-1]

THE PRIOR ART MUST SUGGEST THE DESIRABILITY OF THE CLAIMED INVENTION

"In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification." *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab,* 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000).

THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)

The examiner seems to have taken the position (1) that it would have been obvious to remove the structure that Henze calls the "wax insert" from the structure Henze calls the "jacket" and place it on a support surface so that it would be burned freestanding and (2) if that were done, the result would be applicant's invention. Neither of these is correct. It would not have been obvious to make that modification, and even if done would not provide applicant's claimed invention. Furthermore, doing so would change the principle of operation of Henze and would render the Henze insert unsatisfactory for its intended purpose. Applicant now explains these assertions in order.

The examiner's suggested modifications of Henze are not obvious because there is no teaching or motivation in the prior art to make such modifications. The examiner makes three statements to support the argument for the obviousness of making the modification. The examiner's first statement is:

> "The internal candle (2) of Henze is a separate component from the container. This container simply serves as means of supporting and displaying the candle in the same way as the tray or dish disclosed in applicant's specification of page 8."

First, applicant's attorney does not see the "tray or dish" to which the examiner referred so is unable to comment upon that part of this first observation. Page 8 of applicant's specification appears to be solely a part of the "Brief Description of the Several Views of the Drawings". Additionally, applicant's attorney brought the text of the application into his word processor, did an electronic search for the word "tray" and the word "dish" and found none.

Second, it is true, as the examiner says, that Henze's insert and jacket are separate components. However, the examiner's description of those components as an "internal candle" and a "container" is not in accord with Henze's teachings. Calling the insert an internal candle implies that an internal candle could stand alone as an external candle. But that change in terminology came from the examiner, not from the prior art. There is no teaching or motivation in Henze or any other prior art that Henze's insert, or any similar insert, could or should stand alone. That is contrary to Henze's entire patent, which teaches a candle having an insert with a lower melting point temperature combined with a wax jacket having a higher melting point temperature. Admittedly, the fact that Henze's insert and jacket are separate components, as the examiner observed, means that those components could be separated and the insert could stand-alone. However, the fact it can be done does not make it obvious. MPEP 2143.01 says:

> "FACT THAT REFERENCES CAN BE COMBINED OR MODIFIED IS NOT SUFFICIENT TO ESTABLISH *PRIMA FACIE* OBVIOUSNESS
>
> The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)"

Nothing in the prior art "suggests the desirability of the" examiner's modification.

Furthermore, although Henze's two components could be separated and the insert could stand alone, Henze's insert could not be burned alone because problems would result which are discussed below. Therefore, the examiner's observation that Henze's jacket "simply serves as means of supporting and displaying the candle" does not support a finding of obviousness because it does not show any modification or motivation for that

modification in the prior art. It is a conventional hindsight reconstruction, which came entirely from the examiner and from applicant's concepts explained in the application. Furthermore, as explained above, a container does more than support and display. A container is necessary to contain the liquid fuel which, in a container candle, is supposed to melt all the way to the container wall. The container also affects the burning characteristics of the candle, such as the emission of soot.

In the examiner's second statement to support the obviousness of modifying Henze, the examiner said:

> "Further, as noted in Pappas, it is well understood in the art that a 'freestanding candle' may or may not be placed in a container surrounding the candle."

The statement cited by the examiner in Pappas says that freestanding candles do not have to be placed in a container for support. It doesn't say they will burn the same as when they are freestanding. That statement was made to avoid having someone think that they could avoid infringement by putting an otherwise infringing structure in a container. It would still infringe, even if it did not burn properly.

While it is true that a freestanding candle can be placed in a container, it does not follow that a candle insert designed to be in a container can be removed from its container and used as a freestanding candle. A change in one direction can work although the burning characteristics will be changed. But the opposite change, will not work because different waxes have different properties, such as melting points.

A wax blend designed for support in a container is not suitable for a freestanding candle. The Pappas teaching that a freestanding candle can be placed in a container does not teach the reverse, that a candle fuel body in a container candle can be burned separately. More importantly, it does not teach that the Henze insert can be taken out of the Henze jacket and used separately and freestanding.

The examiner's third statement supporting obviousness was:

> "A person of ordinary skill in the art would understand that the candle (2) of Henze need not be placed in a container and could be placed on another support surface, such as a tray or dish, or to be placed on a table, which would form the support surface."

First, Henze uses reference numeral (1) to refer to the "wax candle" and uses reference numeral (2) to refer to his "wax insert". To Henze, and the other prior art, the candle is the combination of the container and the wax fuel in the container. Although the examiner's adoption of the word "candle" when referring to the insert may imply that the Henze insert might be removed and used freestanding, if Henze had used that term, Henze's terms do not do so. That switch in terminology came from the examiner, not the prior art. No prior art teaches the concept that the examiner says the skilled worker would understand. Thus, this rejection is not based on prior art, but rather is based upon applicant's teachings.

Most importantly, a person of ordinary skill in the art would not understand that the Henze insert could be removed from the Henze jacket and used freestanding. Such a skilled person would understand that the insert of Henze could not be removed and used as a freestanding candle because the prior art worker would understand that the Henze

insert would not burn properly when freestanding. The reasons are these. Henze gives the melting point temperature for his wax insert as 52°C (125.6 F) to 56°C (132.8 F)(col. 2, line 49) and waxes with such melting points are considered by practitioners of the art, to be low melting point waxes used for container candles that are poured and used within the same vessel. Henze's melting point temperatures for his container candle are consistent with the prior art supplied herewith to the examiner, which teach melting point temperature of 125° -127° F [Nussle] and 125° -130° F [Oppenheimer] for container candles and 135° -150° F [Nussle] and 135° -150° F [Oppenheimer]. The waxes used for container candles are not expected to be used in freestanding candles because they have a lower melting point and cannot contain themselves while burning.

The inability of a low melting point wax to contain itself becomes apparent from a consideration of heat transfer in a candle. The flame of a candle has a small portion with a temperature on the order of 2000° F. The heat energy from the flame radiates and is conducted through the air to the surrounding wax and containing vessels, if a container is present. Heat energy is also conducted through the melted wax into the interior of the candle. The temperature in the candle decreases as the distance from the flame increases because of heat loss to the surrounding air. There is, therefore, a temperature gradient through the wax of the candle. The lower the melting point of the wax, the further out from the flame that melting occurs and beyond that the wax is softened. Thus, the lower the melting point of the wax, the greater is the part of the wax that is melted and the

greater is the part which is softened. Obviously molten wax cannot support itself. Additionally, wax that is sufficiently softened can not support itself.

If Henze had intended his wax insert to be freestanding, he would have specified a wax melting point of 135° F or greater as described above and in the publications supplied herewith to the examiner. If Henze's insert were burned freestanding, it would melt thru the candle wall and spill wax because of its low melting point wax. Henze's insert would simply melt down, deform and settle onto its support surface as a mound of wax, well before the wax is consumed as fuel. Those who design candles are aware of this so they design freestanding candles with wax blends that have a sufficiently high melting temperature that this mess will not occur. However, a contained candle does not have that problem because the container wall prevents the problem. Therefore, container candles can and does use wax blends with a lower melting point. They use them to assure that the wax melts all the way to the container wall. That is what Henze does. If the wax insert of Henze were removed and burned in a freestanding condition, it would suffer from these problems. A person of skill in the candle making art would be aware of this and therefore would know not do it.

MPEP 2143.01 says that "THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE". But the examiner's suggested modification of Henze by removing the Henze's wax insert and using it freestanding would do exactly that. That modification of Henze would not only make the mess described above. It would destroy his whole purpose. Henze's

invention was directed to finding an improved jacket material for a jacketed candle. The examiner's proposed modification would be a step away from Henze, because, instead of having a candle with an improved jacket, the examiner's modification of Henze would eliminate the jacket. Henze teaches making the jacket better by using a higher melting point wax. Henze teaches away from the examiner's modification of eliminating the jacket. Therefore, it would not have been obvious to remove Henze's insert from his jacket because that would destroy Henze's intended purpose.

MPEP 2143.01 also says that "THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE". The principle of operation of the Henze candle is based upon the relationship of a lower melting point insert and a higher melting point jacket cooperating in such a way that you get the advantages of a containerized candle but you get that with a more environmentally friendly and recyclable container ("jacket") material. Specifically, the principle of Henze is to use a wax for both the insert and the jacket by using waxes with very different melting point temperatures. The examiner's proposed modification of Henze to remove and separately burn the insert does not merely change that principle, it discards it completely.

Finally, even if the Henze candle were modified by removing its insert from its jacket, the separate insert would not be the structure defined in applicant's claims. Henze repeatedly describes his "insulator or insulating layer" (6). An insulator is a material through which heat is very poorly conducted. An insulator is resistive to heat transfer.

Although Henze does not say why he wants an insulator, a person skilled in the art, such as applicant, knows why. The reason is related to the above discussion and the fact that the flame of a candle is very hot. If Henze did not have an insulator, when his candle burned down to the bottom of his insert, the heat from the flame would be conducted into his wax jacket and begin to melt the wax jacket below the wax insert. Before the flame in Henze reaches the bottom of the wax insert, it is relatively far from the Henze wax container ("jacket"). But, when the flame reaches the bottom of the Henze's wax insert, the flame would be much closer to the wax jacket when the flame reaches the bottom of the Henze insert. That is why Henze's wax jacket would melt and therefore is why he has the insulator.

Applicant does not use an insulator. In fact, applicant's preferred flame resistant sheet is a metal sheet. A metal sheet is not an insulator. It is a conductor. A conductor would increase the conduction of heat, not decrease it as Henze needs.

The point is that Henze teaches use of an insulator while applicant has a flame resistant sheet. These are different. In a simplistic example, paper and wood chips have been used for thermal insulation but are not flame resistant. Of course Henze does teach use of an asbestos or glass fiber fabric or fleece. Obviously the glass and asbestos materials are themselves flame resistant. However, when woven into a fabric, they not only are not fire resistant, they would promote a fire if used on a Henze insert which was removed from Henze's jacket and burned freestanding. The reason the Henze insulators would promote a fire is that fabrics are porous and absorb, or at least adsorb, molten wax.

Therefore, they would act like a wick and may even allow wax to bleed through them onto the underlying support surface. If Henze's insert, with a Henze insulator, could be burned freestanding to near its bottom, the flame would spread across the fabric of the insulator, with the protruding upper surface of the fabric acting like a wick that would be fed molten fuel from where it had soaked into and possibly through the fabric. The Henze insulator would be a fire hazard unless confined in Henze's jacket, which is what Henze teaches.

The examiner stated, in the last office action:

> "Henze further discloses that the insulator layer (6) may be formed on the entire bottom surface of the wax candle/insert (2) (see col. 2, lines 23-28) and is regarded as being joined. The examiner considers that, as the sheet is a solid insulating layer, it would prevent leakage of melted candle wax onto a support surface."

Applicant agrees with the first sentence of this statement. However the second sentence in incorrect. The sodium tetrasilicate would not form a flame resistant sheet. Henze does not say this forms a sheet and it does not form a sheet, for reasons described below. Henze does not say it forms a flame resistant barrier of any kind. Henze says that he forms an insulating layer by immersing the lower part of his insert in sodium tetrasilicate. While applicant's attorney does not know the properties of sodium tetrasilicate, it must have properties similar to sodium silicate and the other silicates of sodium. All are soluble solid particles. Sodium silicate is soluble in water. When Henze speaks of immersing, he can only mean doing that in one of two ways. Literally, he means immersing the bottom of his insert into a powder form. He might also mean

immersing it in a solution of water and the silicate. In either event the result must be the same. If he immerses it in the powder, he is left with powder particles stuck to the bottom of his insert. If he immerses it in a solution, when the water solvent dries, he is left with powder particles stuck to the bottom of his insert.

A clump of powder particles on the bottom of the Henze insert would seem to make a fine heat insulator for the Henze candle. However, if that insert were removed from Henze's jacket and burned while freestanding, if the flame approached the bottom, the powder would flow away in the molten wax. When the powder is confined in place by the Henze jacket, it cannot flow away so it can stay in place and provide the insulation Henze wants. However, such a powder would not resist a flame. It would simply flow away with the wax melted by the flame and expose the underlying, support surface to the flame. Therefore, even if the Henze insert were removed with the insulation coating described by Henze, it would not be applicant's invention. Additionally, it would not be obvious to do so because a person skilled in the art would recognize that the above-described problems would occur. Most importantly, since the sodium tetrasilicate particles would flow away, they cannot reasonably be viewed as a sheet. The layer at the bottom of the Henze insert is an agglomeration of particles forming a heat insulator and the particles can separate when the wax melts.

In conclusion, the basic requirement for obviousness as described in MPEP 2143 is that, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to

one of ordinary skill in the art. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure.

Although all of these are required, none are present here as explained above. Therefore, reconsideration and allowance are respectfully requested.

A request for a one-month extension of time is enclosed. The Commissioner is authorized to charge Deposit Account No. 13-3393 the amount of $55.00 for the extension fee.

The Commissioner is authorized to charge Deposit Account No. 13-3393 for any insufficient fees under 37 CFR §§ 1.16 or 1.17, or credit any overpayment of fees.

Respectfully submitted,

4/21/04
Date of Signature

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Last printed 4/21/2004 9:06 AM
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